

REMARKSIN THE CLAIMS:

As allowed by 37 CFR §1.121(c), Applicants respectfully request that Claims 1, 7 and 61 be amended and that Claims 3 – 4 be canceled as shown below. Of the remaining claims, Claims 2, 9, 10, 12 – 24, 57, 58, and 62 – 64 remain unchanged and Claims 5, 6, 8, 11, 25 – 56, 59 and 60 were canceled in prior amendments.

## CLAIM 1 IS AMENDED AS FOLLOWS:

In lines 8 of the previously presented claim (clause 2 of the reservoir module), a comma and the words -- wherein at least one reservoir comprises a reservoir seal and wherein at least one needle penetrates said reservoir seal -- are ADDED AFTER the words “plurality of bays” and BEFORE the semicolon ending the clause. The change is made to better describe the preferred embodiment and distinguish over the prior art. Support for the change is found in original Claims 3, now canceled.

In line 14 of the previously presented claim (clause 2 of the microfluidic chip), a comma, a carriage return and the words -- wherein said at least one needle is in fluidic communication with at least one inlet -- are ADDED AFTER the words “one of the inlets” and BEFORE the semicolon and word “and” ending the clause. The change is made to better describe the preferred embodiment and to distinguish over the prior art. Support is again found in original Claims 4, now canceled.

## CLAIM 7 IS AMENDED AS FOLLOWS:

In lines 5 of the previously presented claim (clause 2 of the reservoir module), a comma and the words -- wherein at least one reservoir comprises a reservoir seal and wherein at least one needle penetrates said reservoir seal -- are ADDED AFTER the words “fluid manifold base” and BEFORE the semicolon ending the clause. The change is made to better describe the preferred embodiment and distinguish over the prior art. Support for the change is found in original Claims 3, now canceled.

In line 7 of the previously presented claim (clause 1 of the microfluidic chip), a comma and the words --, wherein said at least one needle is in fluidic communication with at least one inlet -- are ADDED AFTER the words "a plurality of inlets" and BEFORE the semicolon and word "and" ending the clause. The change is made to better describe the preferred embodiment and to distinguish over the prior art. Support is again found in original Claims 4, now canceled.

**CLAIMS 59 – 60 WERE CANCELED IN A PRIOR AMENDMENT**

**CLAIM 61 IS AMENDED AS FOLLOWS:**

In lines 5 of the previously presented claim (clause 2 of the reservoir module), a comma and the words --, wherein at least one reservoir comprises a reservoir seal and wherein at least one needle penetrates said reservoir seal -- are ADDED AFTER the words "fluid manifold base" and BEFORE the semicolon ending the clause. The change is made to better describe the preferred embodiment and distinguish over the prior art. Support for the change is found in original Claims 3, now canceled.

In line 9 of the previously presented claim (clause 1 of the microfluidic chip), a comma and the words --, wherein said at least one needle is in fluidic communication with at least one inlet -- are ADDED AFTER the words "a plurality of reservoirs" and BEFORE the semicolon and word "and" ending the clause. The change is made to better describe the preferred embodiment and to distinguish over the prior art. Support is again found in original Claims 4, now canceled.

Applicants assert that no new matter has been introduced as a result of the foregoing amendments.

IN THE SPECIFICATION:

Applicants have amended the specification on page 1 at line 26 to change of the article modifying the words “microfluidic devices” from “an” to --a-- in order to account for the plural form of the subject modified.

Applicants have amended the specification on page 2 at line 17 to correct the spelling of the word “resetting”.

Applicants have amended the specification on page 2 at line 25 to change of the form of the verb from “are” to --is-- to correct the syntax of the sentence.

Applicants have amended the specification on page 3 at line 34 to change of the form of the verb from “are” to --is-- to correct the syntax of the sentence.

Applicants have amended the specification on page 10 at line 28 to correct the punctuation of the sentence by removing the comma after the word “communication” and replace it with a semicolon.

Applicants have amended the specification on page 10 at line 31 to correctly show the tradename “Nafion” as --NAFION®--, and at line 32 to correctly show the tradename “Vycor” as --VYCOR®--.

Applicants have amended the specification on page 15 at line 22 to change of the form of the verb from “are” to --is-- to correct the syntax of the sentence.

Applicants have amended the specification on page 17 at line 32 to change of the article modifying the words “access point” from “a” to --an-- in order to account for the plural form of the subject modified.

Applicants have amended the specification on page 20 at line 30 to correct the spelling of the word “chromatography”.

Applicants have amended the specification on page 21 at line 19 to correct the spelling of the word “molecular”.

Applicants have amended the specification on page 24 at line 2 to correct the spelling of the word "from".

Applicants have amended the specification on page 24 at line 30 to change of the form of the verb from "involve" to --involves-- to correct the syntax of the sentence.

Applicants have amended the specification on page 25 at line 25 to correct the spelling of the word "microfluidic".

Applicants have amended the specification on page 26 at line 6 to correct the spelling of the word "collinear".

Applicants have amended the specification on page 26 at line 12 to correct the spelling of the word "outside".

Applicants have amended the specification on page 29 at line 16 to correct the spelling of the word "anti-siphoning" and changing the phrase "anti-siphoning voltage as is known by those familiar with the art" to the more understandable phrase -- also known as an anti-siphoning voltage as is known by those familiar with the art.--.

Applicants have amended the specification on page 30 at line 16 to change of the form of the verb from "are" to --is-- to correct the syntax of the sentence.

Applicants have amended the specification on page 31 at line 3 to correct the punctuation of the sentence by removing the second period after the words "etch tool".

Applicants have amended the specification on page 33 at line 23 to change the phrase "Referring now to FIG. 9, illustrating the analysis scheme used by the device generally." to the more understandable phrase -- Referring now to FIG 9, illustrating which illustrates the analysis scheme used by the device, generally, [I. A] a sample to be analyzed is injected into a receiving means that can include introduction port 32 and at least one of reservoirs 65, here sample reservoir 65a.--.

Applicants assert that no new matter has been introduced as a result of the foregoing amendments.

CLAIM REJECTION UNDER 35 U.S.C. §102**Examiner's Remarks**

Examiner has rejected Claims 1, 2, 9, 10, 12 – 17, 58 and 61 – 64 under 35 U.S.C. §102(b), as being anticipated by U.S. Patent 6,811,668 to Berndt et al. in that:

*“ Berndt et al. disclose a modular microfluidic apparatus contained in a single housing (see Fig. 6a), the apparatus comprising a fluid manifold base 57 coupled to a microfluidic chip 52 (see Fig. 4). The fluid manifold base comprises a plurality of bays extending through the thickness of the base, and a plurality of reservoirs 60 and 61 positioned within the bays wherein reservoirs 60 can comprise electrodes (see lines 20-30, col. 11). The microfluidic chip 52 comprises an upper surface that is coupled to the lower surface of the fluid manifold base, a plurality of inlets and ports 53 and 54 positioned in locations corresponding to the reservoirs, and a plurality of serpentine channels in fluid communication with the inlets (see Fig. 2) wherein the serpentine channels can be used for electrophoretic separation (see lines 5-19, col. 4). The reference discloses that the interface between the microfluidic chip and any overlying substrate (e.g. the fluid manifold base) is typically sealed (see lines 5-10, col. 9). The device further comprises a sensor module 6 (e.g. optical via laser diode) for detecting an analyte (see lines 40-45, col. 8), an interface 46 for viewing the results of the detection, and a power module 56 for supplying current/voltage.”*

**Applicants' Response**

Applicants thank the Examiner for his review of the prior amended claims.

Applicants further thank the Examiner for allowing Claims 3 and 4 if rewritten in independent form to include all of the limitations of the base claim and any intervening claims because, as the Examiner has noted “...the apparatus disclosed by Berndt et al. do not

*disclose sealed reservoirs configured to be penetrated by a needle that enables fluid communication between the reservoirs and the microfluidic chip. Neither the reference nor prior art offer motivation to provide the apparatus disclosed by Brendt et al. with a needle/seal combination.”*

Applicants, therefore, have instead rewritten Claim 1 to include the limitations of Claims 3 and 4 (Applicants respectfully assert that this results in a claim which is narrower in scope than that of separately amending Claims 3 and 4) and canceled Claims 3 and 4. This approach, however, avoids the need for amending all of the remaining claims originally depending from Claims 1 in order to change their dependencies if Claims 3 and 4 were separately amended.

Consequently, the Applicants respectfully assert that by amending Claim 1 and by cancelling Claims 3 and 4 they have overcome the Examiner’s rejection of Claims 1, 2, 9, 10, 12 – 17 and 58 under 35 U.S.C. §102(b) in that they have removed the grounds for the rejection of these claims because Berndt et al. (‘668) do not teach “*... each and every element as set forth in the claim ...*” as is required by MPEP §2131. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw his rejection of Claims 1, 2, 9, 10, 12 – 17 and 58 under 35 U.S.C. §102(b) and pass these claims to allowance.

Moreover, Applicants have also amended base claim 61 to include the limitations of Claims 3 and 4 again because “*...the apparatus disclosed by Brendt et al. do not disclose sealed reservoirs configured to be penetrated by a needle that enables fluid communication between the reservoirs and the microfluidic chip. Neither the reference nor prior art offer motivation to provide the apparatus disclosed by Brendt et al. with a needle/seal combination.*” As such, Applicants note that Berndt et al. (‘668) do not teach “*... each and every element as set forth in the claim ...*” as is required by MPEP §2131, and therefore, respectfully traverse the Examiner’s rejection of Claims 61 – 64 under 35 U.S.C. §102(b). Applicants further assert that because Claim 61 is not anticipated by Berndt et al. (‘668) and because Claims 62 – 64 each ultimately depends from Claim 61 and merely narrow the scope of the base claim these claims also cannot be anticipated by Berndt et al. (‘668).

Applicant's, therefore, respectfully assert that they have overcome the rejection of Claims 61 – 64 under 35 U.S.C. §102(b) and respectfully request that the Examiner reconsider and withdraw his rejection of Claims 61 – 64 and pass these claims to allowance.

### CLAIM REJECTION UNDER 35 U.S.C. §103

#### *Examiner's Remarks*

Examiner has rejected Claims 18 – 21 under 35 U.S.C. §103(a), as being unpatentable over Berndt et al. ('668), and Claims 7 and 57 under 35 U.S.C. §103(a), as being unpatentable over Berndt et al. ('668) in view Fujii et al. (2002/0071788) in that:

With regard to Claims 18 – 21

“ *Berndt et al. do not disclose multiple microfluidic chips, detectors or manifold bases. However, it would have been obvious to one of ordinary skill in the art to provide the apparatus with multiple units, each unit comprising a reservoir, a microfluidic chip and a detector, to enable simultaneous sample processing. See In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) (holding that mere duplication of parts has no patentable significance unless a new and unexpected result is produced).*” And,

With regard to Claims 7 and 57

“ *Berndt et al. do not disclose a filter.*

*Fujii et al. disclose a microfluidic chip for detecting analytes in a blood sample. The inlet of the microfluidic chip comprises a filter for separating blood cells from plasma (see [0054]). In light of the disclosure of Fujii et al., it would have been obvious to one of ordinary skill in the art to provide the reservoirs and/or the microfluidic chip disclosed by Berndt et al. with a filter so that it can analyze blood samples.*”

#### *Applicants' Response*

Applicants again thank the Examiner for his review of the prior amended claims. In response to Examiner's suggestion that Claims 3 and 4 would be allowable if amended to

include all of the limitations of the base and any intervening claims, because “*... the apparatus disclosed by Brendt et al. do not disclose sealed reservoirs configured to be penetrated by a needle that enables fluid communication between the reservoirs and the microfluidic chip. Neither the reference nor prior art offer motivation to provide the apparatus disclosed by Brendt et al. with a needle/seal combination.*”

Applicants respectfully note that they have amended base Claims 1 and 7 and that in doing so they have removed Berndt et al ('668) as a reference against Claims 18 – 21 and 57 since, as the Examiner has noted, Berndt et al. do not teach or suggest “*a needle/seal combination*”. Therefore, because the needle/seal limitation cannot be found in the combination of Berndt et al. ('668) and Fujii et al. ('788) the structure of these claims, as amended, is distinguishable over the prior art as required by MPEP §2114 and the *Graham v. John Deere Co.* analysis required by MPEP §2141 cannot sustain a showing of *prima facie* obviousness because the content of the instant claims is different from that of the prior art combination (MPEP 2143 II.B.).

Applicants, therefore, respectfully assert that by amending their claims they have overcome the Examiner’s case for *prima facie* obviousness.

Consequently, the Applicants respectfully traverse the Examiner’s rejection of Claims 7, 18 – 21 and 57 under 35 U.S.C. §103(a), as being unpatentable over Berndt et al. ('668) with or without Fujii et al. ('788) because neither Berndt et al. ('668) nor the combination of Berndt et al. and Fujii et al ('788) teach “*... a needle/seal combination*” as shown do the instant claims, now amended.

Therefore, Applicants respectfully assert that they have overcome the rejection of Claims 7, 18 – 21 and 57 under 35 U.S.C. §103(a) and respectfully request that the Examiner reconsider and withdraw his rejection and pass these claims to allowance.

CONCLUSION

Applicants now believe that they have now addressed and cured the rejections set forth by the Examiner and, therefore, respectfully request entry of the amendments now presented and earnestly solicit allowance of this application.

This response is:

Respectfully submitted by,  
SANDIA NATIONAL LABORATORIES



Timothy Evans, Agent  
Registration No. 41,013

P.O. Box 969, MS 9031  
Livermore, CA 94551-0969  
Telephone (925) 294 - 3690



**CERTIFICATION UNDER 37 CFR 1.8**

I hereby certify that this Response and Amendment and any documents referred to as being attached thereto are being deposited with the U. S. Postal Service as FIRST CLASS mail addressed to: Mail Stop Non Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Date of Deposit: 4-22-08

Anna Jimenez  
Person Making Deposit

Anna Jimenez  
Signature

Attachments:

- Reply and Amendment
- Petition for Extension of Time
- Power of Attorney and Correspondence Address Indication Form
- Statement Under 37 CFR 3.73(b)
- Return receipt Postcard